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Compliance on Good Pharmacy Practice (GPP) Guideline in Community Pharmacy of Western Nepal, Nepalgunj

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Abstract

Background: Medicines are an essential component of health-care services. The community pharmacies have great value in terms of providing medicinal services to the general public. Now in Nepal, there is insufficient number of qualified and skilled personnel for pharmaceutical service. Good Pharmacy Practice guideline is a reference for the pharmacy professionals offering the pharmaceutical services to the patients in the different service settings. In accordance with this guideline, National Good Pharmacy Practice guidelines have been formulated, by the Nepal Pharmacy Council (NPC), which establishes certain standards of practice for community pharmacies in Nepal.

Objectives: The objectives of this study was to assess the compliance of "National Good Pharmacy Practices Guidelines" focus to nine parameters such as premises, personnel, quality policy, service strategy, documentation, procurement, storage, prescription handling and dispensing practice system among the community pharmacies inside the Nepalgunj Sub-Metropolitan city, western Nepal.

Methods: A cross-sectional, descriptive study was design using purposive sampling technique and data from 97 community Pharmacies inside Nepalgunj sub-metropolitan city were collected using closed ended Questionnaire related to above mentioned parameters. The validity and reliability of the questionnaire were determined by pilot testing in five community pharmacies of Kathmandu metropolitan city and Cronbach's alpha. A frequency analysis and Student's t test were performed for the statistical analysis through SPSS version 16.

Results: The overall compliance of GPP guidelines in Nepalgunj was found to be 12.71 (50.84%). The premises parameter was average with the score of 3.22 (64.40%). The Personnel parameter was poor with the score of 1.13 (37.60%). None of the community pharmacy have well document of quality policy as score null. Similarly, Services facilities was also below average with the score of 0.72 (36%) whereas, documentation system was good with score of 1.72 (86%). The procurement system and storage system was average with the score of 2.19 (73%) and 2.1 (52.50%)

respectively. Unlike with this, Prescription handling and dispensing parameters were found to be poor with the score of 1.07 (35.60%) and 0.56 (28%) respectively. The average score on premises was not significantly impact ($p > 0.05$) by personnel. On another hand the average score on storage parameter and prescription reading, checking and providing appropriate counseling was found to be significantly ($p < 0.01$) higher for the presence of Pharmacist/Assistant pharmacist then orientation three months course for drug retailers pass (OCPs) and others indicating that score was closely associated with the personnel in the pharmacies.

Conclusion: It was found that most of community pharmacies in Nepalgunj Sub- metropolitan city failed to comply with the standards set mention in the National Good Pharmacy Practice (GPP). A stringent drug policy program based on local area and periodic investigations should be developed to ensure full phase implementation.

Keywords: Community pharmacy; Good pharmacy practice; Pharmacy manpower; Compliance

Introduction

Medicines are an essential component of health-care services [1]. The community pharmacies have great value in terms of providing medicinal services in developing countries [2]. Community pharmacy is a healthcare facility that is able to provide pharmacy services to people in a local area [1,3]. Community pharmacies were usually run by qualified pharmacist in developed countries. However, in developing countries like Nepal, earlier there was insufficient number of qualified and skilled personnel [4].

Good Pharmacy Practice (GPP) assess whether the medicine are safe, effective, available, accessible and are used correctly. GPP guideline was developed by International Pharmaceutical Federation (FIP), as a reference for the pharmaceutical professionals offering the pharmaceutical services to patients in the diverse service setting [1]. In accordance with this guideline, National Good Pharmacy Practice guidelines have been formulated, by the Nepal Pharmacy Council, which develops and

establishes certain standards of practice for community pharmacies in Nepal [5,6].

Community Pharmacy Service in Nepal

In Nepal, now the available pharmacy manpower is; Pharmacists with a 4-year Bachelor degree in pharmacy, five years Pharm D (from Pakistan), six years Pharm D (mostly from India and other countries after 12 years of education), Assistant Pharmacists with a 3-year Diploma in Pharmacy, and "professionals" (so called vyabasai in the Nepali language), who only undertake a short three months orientation training course [3]. They can able to operate a community pharmacy after registering the shop and firm with the Department of Drug Administration (DDA), which is responsible for regulating and controlling the pharmaceuticals and related issues as a drug regulatory authority in the country [7]. The majority of community pharmacies were run by professionals [8]. As of January 2020, the total number of registered pharmacy as per DDA data is 21,651 [6]. But NCDA told that, "There were around 28,000 pharmacies in Nepal". So there might be a lot of unregistered pharmacy in different place of Nepal [9]. According to Nepal Pharmacy Council, the number of qualified pharmacy manpower registered in council is undergraduate and above (4 years B Pharm, Pharm D) 2,047 and Diploma of Pharmacy 7,902.

Drug Sale and Distribution Codes, 2071

The recently developed codes on Sales and Distribution of drugs, 2071 ensure the availability of safety, efficacy, effective and quality medicines throughout the country, to maintain and promote the health services of the people. It gives the guidelines for operating the retail and wholesale pharmacy. The environment of the retail pharmacy should be clean with minimum dust and should be free from rodents and pests. There should be adequate space for proper flow of personnel and patients including people using prams or wheel chairs. Furthermore, there should be provision of drinking water, waste collection boxes, adequate furniture and fixtures, equipment, separate counseling area, refrigerator, storage area. The pharmacy should be managed under legally qualified personnel with appropriate knowledge, training, wearing a neat apron / coat. Likewise, pharmacy should have well documentation system including quality policy, SOPs, statutory documents, audit records, complaint records, record of narcotics and psychotropic drugs. The medicine should be supplied from authorized sources, in sufficient quantities, should initially be quarantined in separate area for narcotics and should be checked its expiry date periodically. Moreover, prescription should be handled, checked and dispensed by qualified personnel with appropriate patients counseling [10].

The objectives of this study was to assess the compliance of "National Good Pharmacy Practices Guidelines" including certain parameters such as premises, personnel, quality policy, service strategy, documentation, procurement, storage, prescription handling and dispensing practice system among the community pharmacy inside the Nepalgunj Sub-Metropolitan city.

Methodology

Research design

This was a cross-sectional and Descriptive study carried out in the Community pharmacies inside the Nepalgunj Sub-Metropolitan city.

Sampling methods and sample size

Purposive sampling was conducted in 97 community pharmacies inside the Nepalgunj Sub-Metropolitan city from May to July of 2019. The study Population was pre-determined using the list of registered pharmacy outlets per wards wise, obtained from pharmacy registration section of DDA, Nepalgunj Regional office.

Instruments and instrumentation

Self-designed closed ended Questionnaires were developed by extracting forms of National Good Pharmacy Practice guidelines and additional literature review consulting with supervisor. The Questionnaire was categorized into different nine parameters such as premises, personnel, quality policy, service strategy, documentation, procurement, storage, prescription handling and dispensing system. The questions were mostly dichotomous and unit weighed. The internal consistency and reliability of the questionnaire were determined by Cronbach's alpha [11]. The alpha value of 0.938 revealed that questionnaire was both consistent and reliable. The mean score obtained under each category were converted to percent scale which was reported as poor (<50%), average (50-75%), good (>75%) [12,13].

Pretesting of tools

Data collection tools were pretested in five community pharmacy of Kathmandu Metropolitan City and final version of questionnaires were prepared.

Ethical approval

Approved from the IRC of Manmohan Memorial Institute of Health sciences (MMIHS) with IRC number MMIHS-IRC-376, date: 25th April 2019.

Informed consent

Written informed consent was obtained from all pharmacies before the data collection.

Data analysis

All preliminary data were coded as 1 and 0 for Yes/No question and other multivariate was coded as per their importance in practice. Further data were expressed as score; percentage and mean score were analyzed through Ms Excel 2010. A frequency analysis and Student's t test were performed for the statistical analysis through SPSS version 16. The Level of statistical significance was accepted as $p < 0.05$.

Operational definition

- Cleanliness: Pharmacy was considered clean if freed from dust, dirt, pests and rodents [10].
- Spaciousness: Pharmacy was considered spacious if there is sufficient space for holding shelves of medicines and proper spaces for clients using prams or wheel chairs [5].

Data collection condition in the site: Pharmacy equipped with computer and appropriate software was investigated by the observation of computer and taking records of software used. Distribution of personnel in the pharmacies was determined by asking and checking their response by observing pharmacy license. Data related to quality policy, service strategies were obtained by asking with the personnel present in the pharmacies. Data on accessible of pharmacist for public and complaints addressed by patients were obtained as per their presence during data collection. Status of registration was investigated by tallying their name with the printed copy of list of registered pharmacy outlets obtained from pharmacy registration section of DDA, Nepalgunj Division. Then, pharmacy outlets were asked to show their certificate during the study. Data on records of narcotic were collected by observing maintenance of the record in the DDA's designated format. Data on Procurement and inventory management were collected by interacting with the pharmacy supervisor and record as "yes" if they fulfilled all criteria as per National GPP guidelines [5].

Data on Presence of refrigerator was recorded as "yes" if electricity is applied, properly worked and maintained with the presence of drugs inside the refrigerator. Data on Prescription handling and dispensing practice was recorded by observing and later on by asking questions as per guidelines [5]. Dispensing personnel was asked certain question as per codes on sale and distribution of drugs to determined appropriate counseling data [10].

Results

As per records on DDA, Nepalgunj Regional Office, (May 2019) there were 282 pharmacies in Nepalgunj sub-metropolitan city. Among them 189(67.02%) retail pharmacies and 93(32.98%) wholesale, pharmacies were distributed (**Figure 1**).



Figure 1: Status of pharmacies in Nepalgunj (N=282)

The overall compliance of GPP guidelines in Nepalgunj was found to be 12.71 (50.84%). Here, none of the Community Pharmacies were fully compliant with the GPP guidelines. The premises parameter was average with the score of 3.22 (64.40%). The Personnel parameter was poor with the score of 1.13 (37.60%). None of the community pharmacy have well document of quality policy as score null. Similarly, Services facilities was also below average with the score of 0.72 (36%) whereas, documentation system was good with score of 1.72 (86%). The procurement system and storage system was average with the score of 2.19 (73%) and 2.1 (52.50%) respectively. Unlike with this, Prescription handling and dispensing parameters were found to be poor with the score of 1.07 (35.60%) and 0.56 (28%) respectively (**Table 1**).

Table 1: Pharmacy practice in Nepalgunj (n=97).

s.no	Parameter	Averagescore	Percent
1	Premises (5)	3.22	0.644
2	Personnel (3)	1.13	0.376
3	Quality policy (1)	0	0
4	Services (2)	0.72	0.36
5	Documentation (2)	1.72	0.86
6	Procurement (3)	2.19	0.73
7	Storage (4)	2.1	0.525
8	Prescription handling (3)	1.07	0.356
9	Dispensing (2)	0.56	0.28
10	Total Score (25)	12.71	0.5084

This study showed that good number of pharmacy has clean and tidy environment around the pharmacies with the score of 0.76(76%). We revealed that pharmacy having spacious enough for comfortable dispensing and also having appropriate seating facilities was average with the score of 0.71 (71%). The provision for drinking water to facilitate medicine administration to the patients and for use of the personnel was also average with the score of 0.72 (72%). Computerized system with appropriate software for the management of services and inventory was poor with the score of 0.26 (26%) (**Table 2**).

Table 2: Parameters and components of pharmacy practice assessment in Nepalgunj (n=97).

Parameter for Good pharmacy practice	Max. Score	n (%)
A. Premises (5) , Yes=1, No=0 N=97		
1. Is the environment around the pharmacy neat and clean?	1	0.76(76%)
2. Is the pharmacy spacious enough for comfortable dispensing and also having appropriate seating facilities?	1	0.71(71%)
3. Is there a provision for drinking water to facilitate medicine administration to the patients and for use of the personnel?	1	0.72(72%)
4. Does the pharmacy have separate waste collection boxes available for patient and for personnel?	1	0.77(77%)
5. Is the pharmacy equipped with computer and appropriate software?	1	0.26(26%)
B.Personnel (3) N=97		
6. Qualification of the supervisor, manage the pharmacy? Pharmacist 0.7, A. Pharmacist 0.2, OCP 0.1	1	0.25(25%)
7. Personnel undergone adequate practical training in community pharmacy? Yes =1, No=0	1	0.75(75%)
8. Personnel in the pharmacy wearing an apron? Yes =1, No=0	1	0.13(13%)
C. Quality policy (1), Yes=1, No=0		
9. Pharmacy having well documented quality policy?	1	0(0%)
D. Services (2) ,Yes=1, No=0 N=97		
10.Accessible of Pharmacist/Assistant pharmacist to public for information and counseling?	1	0.48(48%)
11. Services strategy statement include issues like home delivery of medicines, discount?	1	0.24(24%)
E. Documentation (2) ,Yes=1, No=0		
12.Availability of pharmacy registration certificate for operating the pharmacy? N=97	1	0.92(92%)
13. Record of Narcotic and psychotropic available in the pharmacy? N=77* (excluded 20 pharmacy as, not sold such drugs)	1	0.80(80%)
F. Procurement system (3) ,Yes=1, No=0 N=97		
14.Pharmacy maintains a safe, effective, operational and socioeconomically acceptable procurement?	1	0.92(92%)
15.Are the medicine purchased from authorized sources only?	1	0.97(97%)
16. Availability of list of essential and life saving medicines in the pharmacy?	1	0.30(30%)
G. Storage system (4), Yes=1, No=0		
17.Separate storage area for initial quarantine of all incoming medicine? N=97	1	0.43(43%)
18.Availability of refrigerator with proper maintenance? N=97	1	0.67(67%)
19.Medicine that fall in group ka, kept under proper lock and key? N=77* (excluded 20 pharmacy ,as not sold such drugs)	1	0.48(48%)
20.Expired medicine store separately in a locked shelf? N=97	1	0.52(52%)
H. Prescription handling (3) N=97		
21. Prescription handling is done by? Pharmacist 0.7, A. Pharmacist 0.2, OCP 0.1, Others 0	1	0.22(22%)
22.Prescription reading and checking: Yes =1, No= 0		
a) Identify of the client		0.79(79%)
b) Therapeutic aspects (Pharmaceutical & pharmacological)		0.55(55%)
c) Appropriateness for an individual?		0.52(52%)
d) Social, legal & economic aspects?		0.54(54%)
e) Legality & completeness of prescription?		0.57(57%)
f) Name of the prescriber, his/her address and Council registration number		0.72(72%)
g) Name, address, age, sex of the patient		0.78(78%)
h) Name(s) of the medicine(s), potency, dosage, total amount of the medicine to be supplied		0.75(75%)

i) Refill information if any		0.55(55%)
j) Prescribers' signature		0.71(71%)
Average:	1	0.65(65%)
23 Prescription should be checked for: Yes=1, No=0		
a) Dosage prescribed within the standard minimum or maximum dose range		0.32(32%)
b) Double medication		0.24(24%)
c) Interactions between the currently prescribed medicines		0.11(11%)
d) Contraindications		0.20(20%)
e) History of overuse, under use, or misuse		0.13(13%)
Average:	1	0.20(20%)
I. Dispensing (2), Yes=1, No=0 N=97		
24. Dispensing of medicine is done by? Pharmacist 0.7, A. Pharmacist 0.2, OCP 0.1, Others 0	1	0.22(22%)
25. Provision of appropriate counseling during dispensing? Yes=1, No=0	1	0.34(34%)
Total (25)	25	12.71(50.84%)

Average number of Personnel had undergone practical training in community pharmacies with the score of 0.75(75%) whereas only 13% personnel wearing an apron in community pharmacies. None of the community pharmacies in Nepalgunj had well documented Quality policy at their pharmacies. The study showed that declining involvement of Pharmacist or Assistant pharmacist in the community pharmacies with the score of 0.48(48%). Only 24% pharmacies have services strategy statement include issues like home delivery of medicines, special discount for regular patients (**Table 2**).

We found still 7.2% pharmacies have not maintained pharmacy registration certificate for operating a pharmacy. The study showed with the good score of 0.80 (80%) pharmacy has maintained records of narcotic and psychotropic while 20 (21.60%) pharmacies have not sold such drugs. Similarly, with the good score of 0.92 (92%) and 0.97 (97%) pharmacies have maintain the safe, effective, operational and socioeconomically acceptable procurement and purchased medicine from authorized sources only (NCDA member) respectively. While with poor score of 0.30 (30%), availability of list of essential and lifesaving medicines in the pharmacy (**Table 2**).

Separate storage area for initial quarantine of all incoming medicine and storage of medicine that fall in group ka (Narcotics like Morphine, Codeine etc), under proper lock and key was found to be below average with the score of 0.43 (43%) and 0.48 (48%) respectively, while storage of expired medicine separately in a locked shelf and availability of refrigerator with proper maintenance was found to be average with the score of 0.52 (52%) and 0.67 (67%) respectively. Prescription reading and checking was found to be average with the score of 0.65 (65%) whereas, prescription checked for prescribed doses within the standard minimum or maximum dose range, double medication, interactions between the currently prescribed medicines, contraindications and history of overuse, under use, or misuse was found to be poor with the score of 0.20 (20%). This study also revealed that poor with the score of 0.34 (34%)

pharmacies provides appropriate counseling during dispensing. Out of 97 Pharmacies, 38 (39.2%) pharmacies provide services such as doctor visits, clinics, first aids but rest of 59(60.80%) Pharmacies have not provided such services (**Figure 2**).

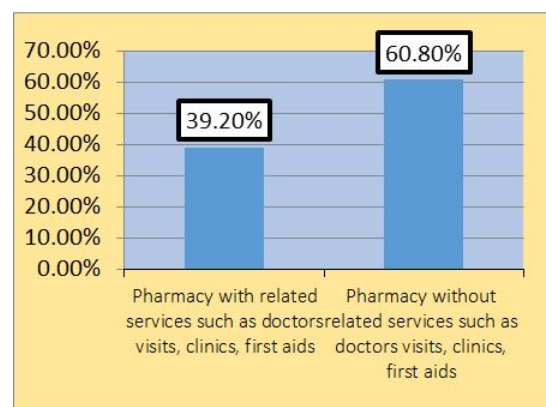


Figure 2: Provision of doctors' visits, clinics, first aids services on pharmacies (n=97).

Out of 97 Pharmacies, 20(20.60%) pharmacies were managed under overall supervision of pharmacist, 32(33.00%) pharmacies under supervision of Assistant pharmacist, 45(46.40%) pharmacies under supervision of orientation course pass (OCP) (**Figure 3**).

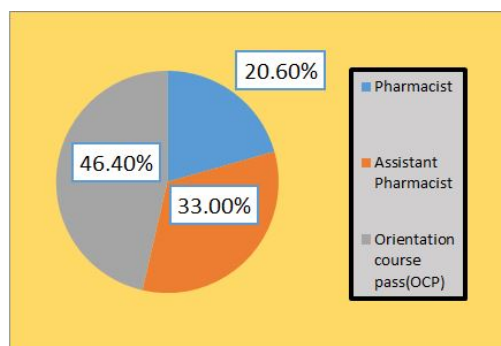


Figure 3: Distribution of personnel, supervised the pharmacy (n=97).

Out of 97 Pharmacies, none of the pharmacy has availability of protocols, SOPs, quality manual and policy and cleaning and maintenance. Only 9.30% Pharmacies have availability of complaints records, 54.60% pharmacies have availability of income audits, 35.10% pharmacies have availability of personnel's details and job description, 10.30% pharmacies have patient's, health profile, 25.30% pharmacies have patient's medication records and 8.20% pharmacies have records of counseling and follow ups for the patients visiting the respective pharmacies (Table 3).

Table 3: Availability of documents in the pharmacy (n=97).

S.no	Documents	Percent
1	Protocols	0
2	SOPs	0
3	Quality manual and policy	0
4	Cleaning and maintenance processes and records	0
5	Complaints records	0.093
6	Audit records (income audit)	0.546
7	Personnel details and job descriptions	0.351
8	Patient's health profile	0.103
9	Patient's medication records	0.253
10	Records of counseling and follow-ups	0.082

Out of 97 pharmacies, 62.90% pharmacies maintain all the record of Narcotic, 15.50% pharmacies do not maintain all necessary record, 21.60% pharmacies were not found to sold such Narcotic drugs (Figure 4).

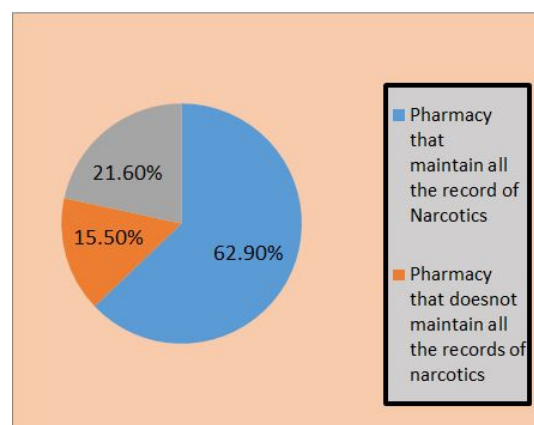


Figure 4: Maintenance of records of Narcotics and psychotropic (n=97).

Out of 97 pharmacies, 17(17.5%) prescription handling was done by pharmacist, 31(32.00%) prescription handling was done by assistant pharmacist, 39(40.2%) prescription handling was done by orientation course pass and 10(10.3%) prescription handling was done by others personnel (HA, CMA, family members) (Figure 5).

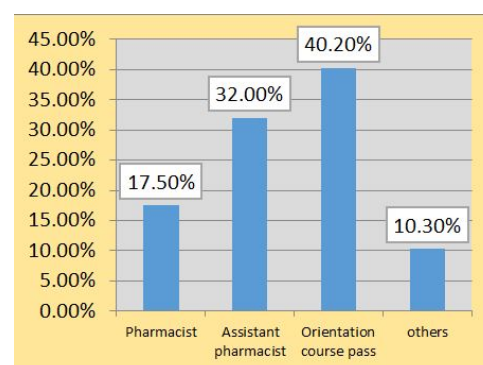


Figure 5: Distribution of personnel for prescription handling (n=97).

Out of 97 pharmacies, 17(17.5%) pharmacists dispensed the medicine, 28(28.90%) assistant pharmacist dispensed the medicine, 37(38.10%) orientation courses pass dispensed the medicine, 14 (14.40%) others personnel (HA, CMA, family members) dispensed the medicine (Figure 6).

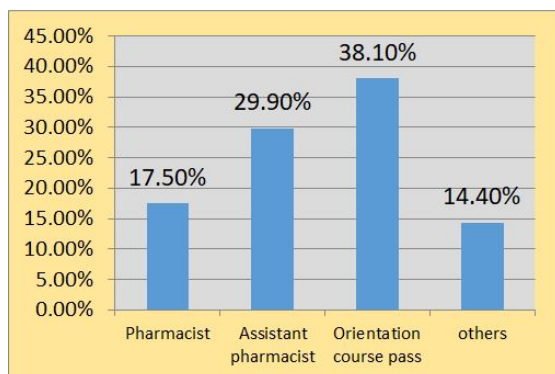


Figure 6: Personnel involved in the final step of dispensing of medication (n=97).

Table 4: Impact of personnel on GPP Score.

S.No	Parameters (total score)	Personnel	Avg.Score $\pm$ S.D	Compliance percentage(%)	Statistics Student's t-test
1	premises(5)	Pharmacist/Assistant pharmacist	3.64 $\pm$ 0.16	0.728	p>0.05
		OCP and others	2.8 $\pm$ 0.28	0.56	
2	storage(4)	Pharmacist/Assistant pharmacist	2.84 $\pm$ 0.10	0.71	p<0.01
		OCP and others	1.13 $\pm$ 0.13	0.2825	
3	Prescription handling and counseling (11)	Pharmacist/Assistant pharmacist	8.45 $\pm$ 0.09	0.8045	p<0.01
		OCP and others	5.63 $\pm$ 0.18	0.5111	

Discussion

The result of this study shows that only a handful of pharmacy outlets comply with legal requirements. The overall compliance of GPP guidelines in Nepalgunj was found to be average with the score of 12.71 (50.84%). The previous study conducted in Kathmandu, Bhaktapur and Lalitpur was found to be 12.81 (55.69%), 11.13 (48.39%), 12.99 (56.48%) respectively [13]. The premises parameter was found to be average (64.40%), similar result was obtained in Kathmandu (60.2%), Bhaktapur (53.4%) and Lalitpur (63%) while the study conducted in Kathmandu and Kaski districts in 2016, rated poor to the physical premises in community pharmacy [14]. Comparing with previous and these present statistics, it shows limitation of community pharmacies towards improvement in premises parameter.

The previous study [3] found that the majority of pharmacy operation was carried by a professional person who took only 45 hours to 3 months training. In this study, 46.40% pharmacies were operated by professionals. 53.60% pharmacies were operated by pharmacist or assistant pharmacist but only half of them were available for the patients. Similar result was reported after studied in three district of Kathmandu valley [13]. Furthermore out of 100 pharmacies from CDR and 125 pharmacies from WDR, only 58.2% of the pharmacy outlets had

The average score on premises parameters for the presence of pharmacist/Assistant pharmacist was 3.64 ± 0.16 (n=52) while it was 2.8 ± 0.28 (n=45) for OCP and others ($p>0.05$), which was not significantly impact on GPP score. On another hand the average score on storage parameter (2.84 ± 0.10 , n=52) was found to be significantly ($p<0.01$) higher for the presence of Pharmacist/Assistant pharmacist then OCP and others (1.13 ± 0.13 , n=45). Similarly, the average score on prescription reading, checking and providing appropriate counseling for presence of Pharmacist /Assistant pharmacist was 8.45 ± 0.09 (n=47) while it was 5.63 ± 0.18 (n=51) for OCP and others ($p<0.01$), which was significantly impact on GPP score (Table 4).

authorized personnel to dispense medicines [15]. This is also prevalent in Sri Lanka, India and Vietnam where a substantial number of pharmacists were found to rent their license [16-18]. As study showed only few number of registered pharmacists presence in a community pharmacy which may be due to discouraging provision in the Drug act-2035, which allows pharmacists, assistant pharmacists and "professionals" to operate pharmacies without taking into consideration of the differences in their qualifications also their services [7].

Regarding the service component, only 48% community pharmacy have access of the pharmacist or assistant pharmacist for medicine information and counseling to the public, while rest of pharmacy of Nepalgunj were run under the presence of other professional. The study done in Bara and Parsa district of Nepal showed 62.1% of pharmacies are registration under orientation trainer [19]. Similar study was done in three districts of Kathmandu valley, only 59%, 56% and 65% pharmacy of Kathmandu, Bhaktapur and Lalitpur respectively have access of the public to pharmacist or pharmacy assistant [13]. Furthermore, this study showed that 24% of pharmacy have facilities of home delivery, special discount for regular patients, elderly patients where as compared to pharmacy service in UK, there is majority of medicinal products are available free of charge for above 75 years old elderly patients [20].

Regarding the documentation system, 7.20% pharmacies still not operating with pharmacy registration certificate but compared to previous data, studied in two development region, CDR and WDR of Nepal where overall 17.33% pharmacy, had not registration certificate [15]. Hence, improvement can be seen. But still there were 7000 unregistered retail pharmacies according to NCDA [9]. Furthermore, 15.5% of the pharmacies outlets were not maintain narcotic/psychotropic record, as previous study showed that overall 32.79% not maintaining such record in CDR and WDR of Nepal [15]. Similar studies from Pakistan, Cameroon and Nigeria reported that medicines are stocked and sold without any restriction on narcotics/psychotropic license [21-23]. Hence, regulators should come up with stringent actions for those who failed to maintain narcotic/psychotropic record.

The study found that only 43.3% Pharmacies have separate storage area for initial quarantine of all incoming medicine. The separate area for incoming goods, separate narcotic storage and separate arrangement for expired were not found much. The reason might be low inventory in community pharmacy. The similar study done in Kathmandu, Bhaktapur and Lalitpur, reported 36%, 39% and 45% respectively, inadequate poor storage facilities [13].

This study showed that maximum percentages of the prescriptions were handled by orientation course pass personnel and unauthorized personnel. The quality of services provided by them cannot be compared and substituted with the services offered by Pharmacists/Assistant Pharmacist who are professionally trained. The study showed few personnel working in the pharmacy opting to extract patient information from the prescription. Due to lack of presence of pharmacist, personnel were not focused to check either dosage prescribed within standard range, double medications, drug interactions, contraindications and history of overuse or misuse. The causes might be due more focus on earning then quality services. The similar study done in Kathmandu valley shows that prescription handling practice of three districts of Kathmandu valley were average [13].

Regarding the dispensing service, the study showed that unauthorized and orientation course pass personnel were found in maximum pharmacy compared to pharmacist, which affect the quality services of pharmacy. The previous study done in Bara and Parsa Districts found 91.4% dispensing practice being done by non-pharmacist [19]. The poor dispensing practice in community pharmacy, results inadequate patients counseling, causes in patients' compliance and directly quality of life. This is due to lack of qualified assistant pharmacist and pharmacist in community pharmacy service and, probably due to more focused on earning than service.

The average score on premises was not significantly impact on personnel. On another hand the average score on storage parameter and prescription reading, checking and providing appropriate counseling was found to be significantly higher for the presence of Pharmacist/Assistant pharmacist then OCP and others indicating that score was closely associated with the personnel in the pharmacies. So pharmacist /Assistant pharmacist play a important role for the improvement of

pharmacy outlets and providing the patient oriented services rather than business oriented.

Conclusion

The overall compliance of GPP with the required guidelines was found to be average. Most of community pharmacies in Nepalgunj Sub-metropolitan city failed to comply with the standards set by National Good Pharmacy Practice(GPP). Although, premises of many pharmacies were found to be improve. Pharmacy manpower situation is gradually improving as 17.5% pharmacist and 28.90% assistant pharmacists are involved in dispensing medication. Availability of unregistered pharmacies, still found to be challenging to provide quality of health services. Furthermore, presence of authorized personnel in pharmacy outlets was found to make them more accountable to storing expired medicines in separate designated place, maintaining narcotic/psychotropic medicines record, providing appropriate counseling during dispensing the medication. Therefore, only trained health staff should be allowed to provide pharmacy services.

Recommendation

- Community pharmacies were need to develop a stringent drug policy reflecting their resources, needs and problems of targeted rural area and periodic investigations to ensure full phase implementation.
- Need to develop and encourage qualified professionals in community pharmacy.
- Provide information, training, seminar about GPP for both personnel and public to improve service quality in pharmacies at community levels.
- CPE training program for drug sellers are needed to enhance knowledge and promote safer practices.
- Proper arrangement of separate storage area for all incoming medicines and provision of well working refrigerator in the pharmacy for storage of medicine should be emphasized.

Limitation of Study

This study was carried out in 97 community pharmacies of Nepalgunj Sub-metropolitan city. The research was conducted in short duration. The research report gives the picture of community pharmacies inside Nepalgunj Sub-metropolitan city. The picture would have been clear if we represent the data of all the pharmacies inside Nepalgunj Sub-metropolitan city in our study.

Conflict of Interest

We do not have any conflicts of interest to declare.

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